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AUTHOR Lankard, Bettina A.

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ABSTRACT

Total Quality Management (TQM) establishes business and industry standards and techniques that ensure the quality of products leaving and reaching firms through continuous actions rather than one final inspection. Deming, Juran, and Crosby, who initiated the process, share a common theme of participatory management. Management participation and attitude, professional quality management, employee participation, and recognition reflect a philosophy making internal and external customer satisfaction as the organization's primary goal. TQM implementation success varies depending upon the strategies employed: "cascade" or "trickle down"; "infection" or "bubble-up"; and "loose-tight." In order for TQM efforts to meet expectations, good tactics and a strong strategic framework should be employed. Five phases are offered to implement TQM in vocational education institutions: commitment; organization development; customer focus; process orientation; and continuous improvement. Improving the quality of products and services is crucial to the public education system. Westinghouse Vocational Technical High School in New York City demonstrates TQM in its Education Quality Initiative. Benefits of TQM philosophy in vocational education programs are the result of attitude change and teamwork. With good facilitation, interdisciplinary cross-functional teams can result in improved communication, increased involvement, improved quality and efficiency, and increased productivity. (NLA)

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Center on Education and Training for Employment
1900 Kenny Road
Columbus, OH 43210-1090

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ERIC Clearinghouse on Adult, Career, and Vocational Education

Total Quality Management: Application in Vocational Education

by Bettina A. Lankard

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Total Quality Management (TQM) is a concept introduced by business and industry to establish standards and techniques that ensure the quality of products leaving and reaching firms through continuous actions rather than through one final inspection. It relies on the experiences, expertise, and commitment of all members of an organization to improve the processes by which customers are served. To operationalize this concept in educational institutions, a number of implementation models and strategies have been developed. This *ERIC Digest* focuses on some of those methods of implementation and their applicability to vocational education, and describes the benefits that can be realized by adopting a quality improvement process.

Philosophy

Three quality theorists whose work has most influenced the quality planning processes initiated by U.S. businesses are W. Edwards Deming, Joseph M. Juran, and Philip B. Crosby, Sr. The theories of each of these individuals have a common theme–participatory management that involves input, problem solving, and decision making by all members of an organization and its customers (Spanbauer and Hillman 1987):

- Deming promotes the role of management as one of facilitating workers to do their best by removing barriers that prevent high quality work and by involving workers in decision making. He emphasizes process improvement as crucial to product improvement.
- Juran suggests that management problems are related to human element errors. He promotes management training in quality concepts and the use of quality circles to improve employee communication across levels. His focus is on understanding customer needs.
- Crosby promotes a "prevention" process wherein requirements for quality conformance are jointly written by managers and workers and address the needs of the customer. He promotes a "zero defects" standard in which the cost of nonconformance to the standard is eliminated.

Although each of these theorists focuses on a specific theme, all of the theories are reflected in a general way in Crosby's model, which presents four pillars that support the quality process in any organization (ibid., pp. 25-26):

- **Management Participation and Attitude.** The new concept of quality must be introduced and supported by management.
- **Professional Quality Management.** Quality councils, established throughout the organization, are crucial to management of quality.
- **Employee Participation.** Employees must be given comprehensive training about quality concepts so that they will commit to the concept.
- **Recognition.** Reinforcements for employee efforts and achievements should be planned and offered at different levels through the organization.

These pillars to support the quality improvement process reflect a philosophy that places customer satisfaction as the organization's primary goal, with the word "customer" referring to **internal customers** (workers in other departments who are dependent on receiving high quality work to do their jobs successfully) as well as to **external customers** (the ultimate users of the product or service) (Crumrine and Runnels 1991).

TQM requires a change of attitude on the part of an organization's management and staff wherein all workers are encouraged, empowered, and committed to seek out improvements in process, products, and services and to accept responsibility for solving problems as they arise. It promotes the use of interdisciplinary teams of workers who must work cooperatively and collaboratively to achieve common objectives and requires the backing of management as evidenced by allocation of time for team meetings and the identification of areas for staff development.

Models of Implementation

Although the TQM philosophy is sound, implementation success is varied depending upon the strategies employed to achieve the organization's goals of quality improvement. Several implementation models are described by Seymour and Collett (1992): the "cascade" or "trickle down" model, the "infection" or "bubble up" model, and the "loose-tight" model.

The "cascade" model involves educating and training senior officers of an organization in TQM principles. These officers then develop a vision and plan for the organization that they pass down to division and unit officers, who also receive training in TQM and subsequently implement the agreed-upon plan. Although this model creates movement and a sense of purpose, its weakness is that it suggests (or leads others to decide) that there is one right way of doing things, which is counter to the TQM philosophy.

The "infection" or "bubble up" model does not rely on top-level commitment but uses voluntary pilot programs to demonstrate success and then promotes the TQM philosophy through the organization by reference to those programs. This approach encourages individual initiative; however, it often lacks the commitment and leadership from senior officers that is so important to successful implementation.

The "loose-tight" model is an approach in which senior officers function as facilitators as well as leaders. The officers demonstrate commitment and engage in detailed and comprehensive planning that involves employees, often assembled in teams, to execute quality improvement procedures. This model combines the strengths of the "cascading" and "infection" models.

In analyzing these models for their applicability in institutions of higher education, Seymour and Collett (1992) point out the varying levels of visibility among the three approaches to implementation. Although their comments are directed to post-secondary institutions, they can be correlated with similar characteristics evident in secondary schools. Seymour and Collett suggest that the high-visibility "cascade" model may be more appropriate at smaller institutions where everything tends to be highly visible. Large campuses, however, are fragmented into specialized academic disciplines and autonomous centers and research units; therefore, they may opt for the low-key visibility more common with the "infection" model. The "loose-tight" model, which combines low-key and high visibility, may be most appropriate for a number of institutions that have a more "middle of the road" approach to TQM. Whichever implementation model is employed, it should be appropriately linked to the "institution's mission, its culture, its strengths and weaknesses, its opportunities and threats, and the number and location of change agents and would-be champions" (ibid., p. 9).

Implementation Strategies

Actual implementation of a quality improvement approach to operations requires movement from the philosophical concept of TQM to a strategic framework for implementation. According to McCormack (1992), when TQM efforts do not meet expectations, it is often because of poor tactics and lack of a strategic framework.

Crumrine and Runnels (1991) offer a model for implementing TQM in a vocational-technical school or similar institution that identifies five phases or categories for implementation and the tasks associated with each category:

1. **Commitment.** Investigate, evaluate, adopt, and obtain commitment to TQM.
2. **Organizational Development.** Integrate TQM into key management processes; educate, train, and offer support to employees.
3. **Customer Focus.** Determine work teams; analyze customers, products/services.
4. **Process Orientation.** Identify, standardize, and improve process control.
5. **Continuous Improvement.** Develop method for identifying opportunities and integrating the improvement process into daily operations.

Sutcliffe and Pollock (1992) allude to similar strategies as they discuss the implementation of TQM in institutions of higher education. They suggest that "implementation begins with the drawing up of a quality policy statement and the establishment of an organisational framework for both managing and encouraging the involvement of all parties in attaining quality through teamwork" (p. 24). They recommend that all workers throughout the institution be trained in quality assurance methods, problem-solving techniques, and communication and that evaluation occur at all levels and include the customers' perceptions as well.

Best Practices

Improving the quality of products and services is crucial to the public education system. George Westinghouse Vocational and Technical High School in New York City has realized positive results from its quality improvement program, the Westinghouse Education Quality Initiative. Westinghouse is an inner-city school with a high transfer rate, an aging faculty, and a diverse student population (74 percent Black, 23 percent Hispanic, and 25 percent female), which is represented by a large number of single-parent, low income families. By adopting the TQM message and applying teamwork to resolve such problems as low staff morale, low student performance, class cutting, and student failure, Westinghouse was able to achieve the following outcomes: Westinghouse students have become more involved in the school, the dropout rate has declined, membership in the PTA has grown, and faculty are more involved in unpaid, after-school brainstorming sessions (Schargel 1991).

One strategy Westinghouse has initiated to realize these outcomes is interdepartmental meetings where staff work together to resolve problems and integrate new programs. In the vocational and technical departments, for example, teachers have collaborated to redesign the ninth-grade program (where most student dropout occurs) so that entering freshmen are paired with senior mentors for shop classes. "In the program's pilot year, 28 freshmen who participated in the program received grades of 85 or better. Of an equal number of students not in the program, only 14 scored 85 or better" (Schargel 1991, p. 77).

The work at George Westinghouse Vocational and Technical High School demonstrates the application of total quality management concepts to vocational education in secondary schools. However, studies show that "the most comprehensive TQM efforts are found at community colleges and smaller, private institutions" (Seymour and Collett 1991, p. 3). The units most commonly targeted in the colleges' initial TQM efforts are the registrar's office, student affairs, and certain academic units–schools of business and engineering, continuing education, and graduate school. This may be because these units have identifiable processes, established boundaries, and ongoing contact with industry and other extra-campus constituencies, which facilitates strategic planning.

Benefits of Implementing TQM

Many of the benefits of implementing a Total Quality Management philosophy in vocational education programs are the result of attitude change and teamwork. This is true at Ohio's Edison State Community College, where initial efforts to adopt quality management focused on cultural change and getting "everyone to buy into a mentality that saw students, coworkers, supervisors and employees as valuable human beings who deserved the best possible service" (Yowell 1992, p. 2). Sutcliffe and Pollock (1992) promote the use of interdisciplinary, cross-functional teams and cite the benefits by pointing out that with good facilitation, these teams can result in "improved communications, increased involvement, improved quality and efficiency in a general context, and increased potential for productivity" (p. 22). These and other examples presented in the literature suggest that educational institutions, as well as business and industry, can benefit by adopting Total Quality Management principles as they strive to improve the quality and cost effectiveness of their operations.

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THE OHIO STATE UNIVERSITY
1900 KENNY ROAD • COLUMBUS, OHIO 43210